

Please forward to the Head of Physics



Exciting Teaching Aids

Best to buy from EDUCATION MATTERS for expert product support

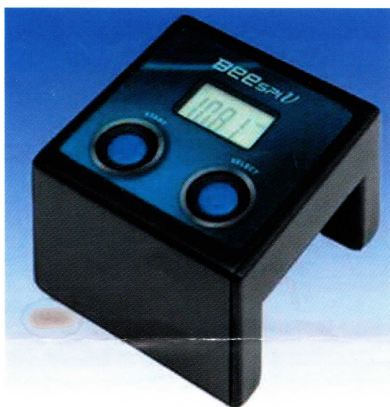


BT123GN Super Jumbo 175 x 180mm \$32.00 Page 9

THE MOST VERSATILE VELOCIMETER AND USER FRIENDLY PHOTOGATE EVER

SMART PHOTOGATE (SPG)

Self contained, **digital display** with AAA batteries



EMA175501

\$68

See Page 2 for more details
and

WATCH ME WORK!



NEW

Adrian says:

One of our favourites for teaching "ELECTROMAGNETISM"

6 DIFFERENT ELECTROMAGNET SOLENOIDS IN ONE! VARIABLE TEACHING ELECTROMAGNET

To study the effect of current and number of coils on the strength of an electromagnet. Tapping at 100, 200, 300, 400, 500, 600 turns. The weights used are large paper clips. A variable D.C. low voltage supply is required. Graph for superb visual understanding

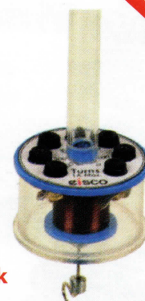
Supplied with Spring balance & manual.

One school bought 10!

- * Current
- * Coils(Turns)
- * Weight
- * EM Forces

CBP0800C

\$49

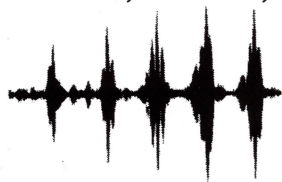


With Hook

NEW

SINGING SOUND PIPE WHIRLER

Twirl at different speeds to create 5 standing waves. Twirl many to create a symphony!



Great Resonance Demo
With instructions

EM Best Seller

EMA042801

\$9



THE POWER TUBE

Turn your body into a conductor!

Make a giant chain of electricity. Perfect for teaching about closed and open circuits and much more.

The Power Tube has a highly sensitive circuit that's able to detect very small currents resulting in flashing lights and buzzing.

Absolutely spectacular. Try it with a Tesla Ball for great reactions.

P62400

\$18

Why?



Lights up. No batteries. Hands only!

NEW

Measures distance and calculates hypotenuse, area and volume!

Quick Draw your LASER to get an instant answer! How good is that?

What a great way to see and explain laser light in action.

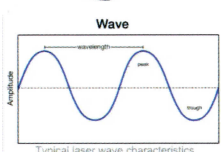
TEACHER LASER MEASURE WIZARD

- Measure distances up to 35m with 1.5mm accuracy!
- Measure in a variety of situations including difficult to measure places, projectiles, inclined planes, room dimensions, sports fields, anywhere really quickly and accurately without clumsy rulers and tape measures.

It's Quick!

QM1642

\$139



NEW

TESLA BALL

Self contained Physics Lab! Why?

Because it teaches about electrodes, gases, energy levels, currents, electron streams and more.

This is not a toy but a sensational learning aid.



EMTB001

\$59

Education atters

ABN 77 094 935 869

1/31 Dalgety St, Oakleigh Vic. 3166

Ph: (03) 9568 6408 Fax: (03) 9568 1938

Email: sales@educationmatters.com.au

www.educationmatters.com.au



SMART PHOTOGATE (SPG) \$68!

NEW

The most versatile VELOCIMETER
and user friendly PHOTOGATE ever

SELF CONTAINED WITH DISPLAY

No more messy wires, timers, power supplies or high cost. Single button operation is a snap to learn and all with only 2 x AAA batteries. Measure 0-99.9km/hr including the front end of carts. Some suggested applications include:

- Free fall speeds
- Carts motion
- Projectiles
- Lap time with cumulative function
- Period of a pendulum
- Energy transformation on inclined planes and much more
- A number of applications require two SPGs

Adrian says:

"Even my mum could use the SPG and she's a self confessed technophobe. Sorry mum. Enough said!"

Your students will be collecting data in no time

SMART PHOTOGATE (SPG)

Self contained, **digital display** with AAA batteries

EMA175501

\$68



SMART PHOTOGATE HOLDER

For adjusting height and angle for optimum alignment

EMA175502

\$49

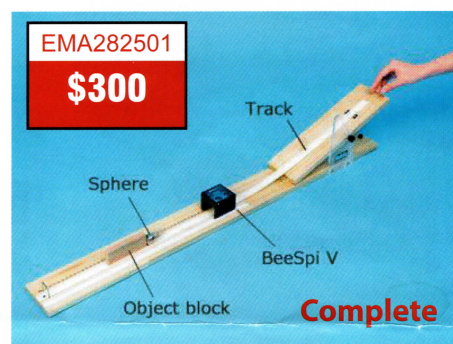


INCLINED PLANE AND TRACK SUPERSTRUCTURE

Perfect for dynamics experiments of ball rolling down track relating force, height, weight, speed
Includes one SPG plus everything in image

EMA282501

\$300



FREE FALL APPARATUS SUPERSTRUCTURE

Perfect for studies in velocity and acceleration (calculate V1 & V2) in free fall
Includes two SPGs plus everything in image

EMA198601

\$345



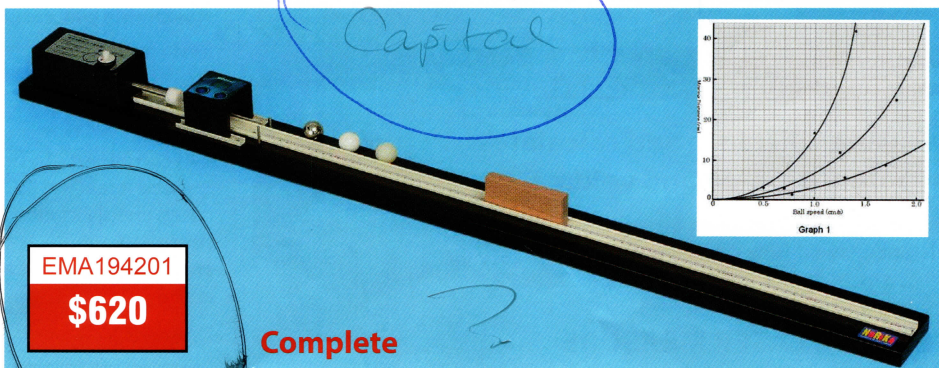
Complete

COLLISION APPARATUS FOR $\frac{1}{2}MV^2$ AND $\Delta\frac{1}{2}MV^2$

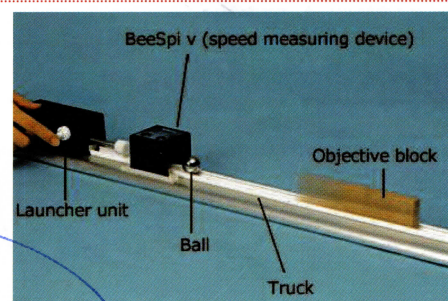
Includes horizontal ball launcher and guide rail for measuring velocity. Calculate kinetic energy change measuring distance moved by wooden block after collision by the ball on the guide rail.
Includes one SPG plus everything in image

EMA194201

\$620



Complete



Comprehensive Product Details Available, simply email us sales@educationmatters.com.au

Best to buy from Education Matters for expert product support

**WHY DATALOG WHEN THE
SPG PHOTOGATE IS HEAPS EASIER?**

WATCH ME WORK Google You tube BeeSpi V

NB : SPG is our term for the BeeSpi V because it has a more functional meaning.
Have also applied more meaningful names to the accessories.

COULOMB METER - DIGITAL ELECTROSCOPE

- The display will show the number of Coulombs deposited into the instrument either by current through a resistance or from a capacitor or from a source of static electricity
- Identifies + or - charge
- Accuracy! 10 nano Coulombs.

Identifies and measures charge



EM Best Seller

PH0913-N8

\$79

SUPER JUMBO SLINKY SPRINGS

New super jumbo plastic slinky spring can be more easily reversed end to end without tangling. Bring a new dimension to wave motion study with Ginormous slinky.



BT123GN Super Jumbo 175 x 180mm **\$32.00**
BT123XL Jumbo 155 x 150mm **\$28.00**

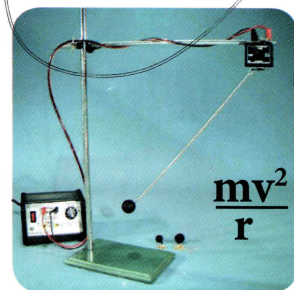
CIRCULAR MOTION KIT WITH SPEED CONTROL

EM Best Seller

MF0848001

\$105

- Permits the swinging of a mass in a circular orbit under controlled conditions.
- Measurements are made on orbit diameter, mass of the projectile and revolutions per minute.
- Superior and accurate readings are an outstanding feature.



MAGDEBERG HEMISPHERE

- Extra Large
- Tough Plastic
- Secure seals
- 11cm dia
- 2 way valve for easy release and operation

PH0171A

\$69



DYNAMICS CART NON-FIRING PAIR

- Very low friction wheels, wide apart for better stability
- High Quality precise manufacture. Unit runs in a straight line.
- Unbreakable rigid body can support a person's weight
- Sponge pad for a gripping platform surface
- Fully stackable to double or triple mass or for storage

MF0946-001

\$65

Extra Large



DELUXE LARGE SCREEN POWER METER

WITH 1M EXTENSION LEAD

- This deluxe power meter allows you to monitor the energy consumption of an appliance with the added convenience of being able to read the large LCD screen via an extension cord. It will instantly display the voltage, wattage or cost usage
- Easy to read large display
- Max load: 10A/2400W

MS6119

\$35



HIGH PERFORMANCE MULTIFUNCTION ELITE STOPWATCH

- Dual timer.
- Water resistant to 20m
- Includes lithium battery and lanyard.
- Up to 100 lap memory record
- Counts stroke rates

XC0287

\$24



HAND GENERATOR

Hand operated, housed in clear tough plastic case. Mounted lamp on the end can be used as a flash light. Can be utilized with almost any experiment requiring upto 12V DC current

PH1229HG

\$20



DYNAMICS CART (PAIR)

- Inboard wheels to avoid tangles.
- Safety Catch on firing shaft.
- Unbreakable. Fully Stackable.
- Accurate total mass 600g per cart
- All spare parts available!

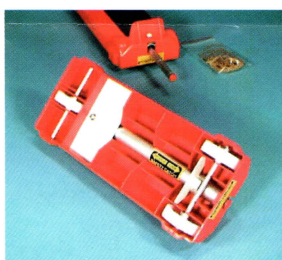


Superior Quality!
Better Stability!

MF0945-001

\$110

With firing shaft!



DISSECTIBLE TRANSFORMER, SMALL, 12V.AC,300+300+600T KIT

Dissectible Transformer - Small. It consists of a 'U' and 'I' core and a set of coils for study of induction and transformers and it is designed to operate at a safe 12V.AC.. Iron bars are included to study losses in iron, eddy currents, DC and AC magnets and more. A pair of strong Alnico bar magnets are included in the kit.

EM4089-00

\$69



DRILLED BALL SET

- Multipurpose set, ideal for pendulum experiments and other lab needs
- 6 balls, 25mm dia
- Each ball drilled with 3mm dia hole
- Wood, aluminium, steel, copper, brass, lead

PH0109

\$32

Pendulum
Motion studies



SPECIFIC HEAT CYLINDERS

EQUAL IN SIZE

- 6 cylinders, 38 x 9.5mm
- Copper, lead, brass, zinc, iron and aluminium
- Presented in convenient storage stand

PH0434

\$29



High quality Accurate

SPECIFIC HEAT CYLINDERS

EQUAL IN MASS

- 6 cylinders varying in length from 5 to 19cm
- Drilled for suspension
- Copper, lead, brass, zinc, iron and aluminium
- Presented in convenient storage stand.

PH0432

\$39



RARE EARTH MAGNETS

- Exceptionally strong
- Made from Neodymium
- Iron Boron the Highest available magnetic energy of any material 28mmx19mm

LM1652

\$32

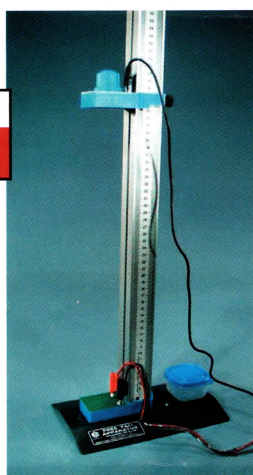


FREE FALL, SOLENOID REL, 1 METRE, 2XBALLS, C/W TIMER

- This is a 1m fall and uses a SOLENOID release for the STEEL ball and 2 STEEL balls of different sizes are used.
- An electronic timer is connected to the upper and lower platforms to obtain a signal as the ball begins to fall and another when the ball hits the lower platform.
- All connection cables and plugs are supplied in the kit. IN THIS MODEL THE TIMER LB4064-101 IS INCLUDED.

MF1871-401A

\$442



BULB HOLDERS IN SERIES

Perfect for demonstrating OHM's law without messy wiring.
Consists of mounted MES globe holders and 4 mm terminals

PH1029A

\$14



BULB HOLDERS IN PARALLEL

Perfect for demonstrating OHM's law without messy wiring.
Consists of mounted MES globe holders and 4 mm terminals

PH1029B

\$14

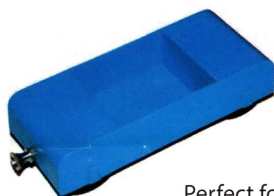


HALL'S CAR

- Essential for dynamics experiments
- Car has low friction wheels
- Durable plastic moulded body with deep well for weights

PH0351

\$22



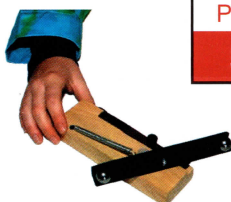
Perfect for
incline planes, flat surfaces and
general motion studies

FALLING BALL APPARATUS

- Also known as a **Vertical Acceleration Demonstrator**
- Classic Galileo experiment of horizontal and vertical motion
- Quality wooden and metal construction with spring Supplied with 2 steel balls.

PH0318

\$69



RHEOSTAT

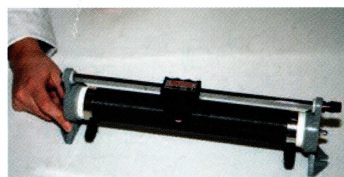
5A, 110HM

- High quality wire wound unit with 4mm terminals

PH1150F

\$85

Portable heavy duty Educational model



LEYDEN JAR

- Shock your students again and again with this Leyden Jar.
- It comes with a durable inner and outer plate, a plastic dielectric, and directions.
- The inner plate has a hook and ball attached which makes it easy to charge.
- Use this equipment to duplicate many classic static electricity experiments.

PH0906

\$20



LASER LIGHT SHOW

DMX Powered Laser Beam

- Unleash a barrage of atmosphere creating lasers. This model features an XLR out plug that allows you to daisy-chain multiple units together for full DMX controlled visceral ambience.

Specifications:

- Laser modules: Red & green
- Laser colour: Able to product red, green, yellow
- Scan system: High speed step motor drive and grating scale
- Sound control: Auto, DMX 512 (7 channels)
- Laser patterns:

More than 64 laser patterns

SL3451

\$209



FOG MACHINE 900W DMX

Add an extra dimension to your laser show

- This unit gives you a range of control options which include the ability to set the machine to burst fog for specific durations at certain intervals as well as to manually trigger with the supplied remote control.
- The real standout feature is the support for DMX.
- Hook this up to your DMX512 controller and fog will waft out with the beats allowing total customisation.
- Remote included

AF1213

\$139



Fog juice to suit AF1212 (available separately)- \$18.00

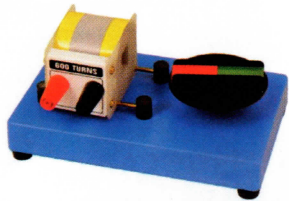
ONLY FROM EDUCATION MATTERS

LAPLACE'S ROTATING MAGNET

Stylish and elegant combination for investigating often overlooked variables of ELECTROMAGNETIC INDUCTION including:

- Speed Of Rotation(Manual) Of Magnet
 - Distance Between Coil And Rotating Magnet Axis
 - And Much More
- Supplied with 600 turns coil and Alnico magnet.

CBP0845RME
\$79



This Product Is Sure To Impress

LAPLACE'S RAIL

Brilliant demonstration using the kinetic effects of ELECTROMAGNETIC INDUCTION.

The axle is free to roll along the rails until power(6-9V) is applied when between the poles of a strong electromagnet.

CBP0845
\$43



Kinetic Effect!

The axle is repelled and rolls away. WHY?

LAPLACE'S BENDING WIRE

We know that wires bend using a mechanical force. But how about when using an electrical force? This apparatus clearly demonstrates **THE HOW AND WHY**. Complete with stand, rod, wire, magnet and 4mm sockets.

CBP0845LAA
\$99



MAGNETIC FIELD PROBE

For detecting and mapping magnetic fields
I love this ingenious device. Put it anywhere where there is a magnetic field including hard to get at spots. 19mm alnico magnet is mounted in a freely rotating gimbal for 3D location and mapping. Quality plastic superstructure. Quick, easy and effective detector and inexpensive enough to consider class sets.
Rotating Magnet Head

CBP0798MP
\$18



Adrian says:

THE GENERAL GAS EQUATION $PV = nRT$

Often wondered about a piece of equipment which could derive this equation.

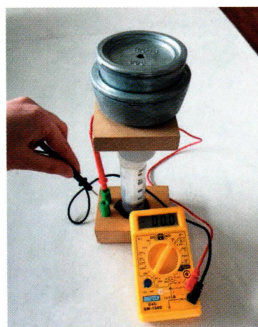
I was fortunate to be there at the very beginning when the **PVT Syringe** was being developed making suggestions and spurring the inventor on to go with it. It definitely provided the solution to my **Gas Equation** problem. How I wish I could have handed out a class set of these little beauties.

PVT SYRINGE

- Modified Boyle's Law syringe only better
- Integrated thermistor
- Connects to a multimeter
- Dead easy to operate
- Comprehensively establishes the relationship between pressure, temperature, volume
- Instructions supplied
- Does not include multimeter and connections, weights.

F004
\$67

$PV = nRT$



AMPERE RULE APPARATUS

EASY

This apparatus allows student to study the magnetic field around wire. Heavy brass wire with terminals is arranged on a clear plastic base. Also included are 1 each 45 mm compass and 6 each 16 mm compasses. Dimensions 17.5 x 7.5 x 10 cm approximately.

PH0839
\$40



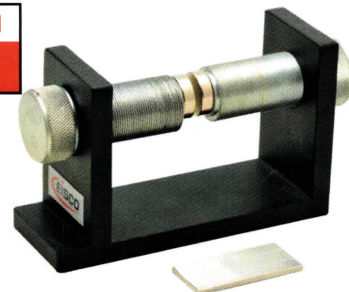
RIGHT HAND SCREW RULE

VARIABLE GAP MAGNET

It's a strong, general purpose lab. magnet convenient for experiments in magnetic induction.

PH0801VGM
\$55

Neodymium Magnets 20 mm dia. on an iron base. Field strength can be adjusted between 100 and 7500 Gauss. Adjustment Screws Gap can be varied between 0.4 cm and 8.5 cm Versatile base is used for freestanding positions or mounted on a stand. With flat pole pieces to provide a more uniform field when needed.



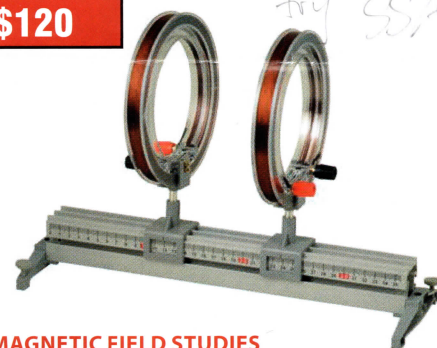
ADJUST AND GRAPH

HELMHOLTZ COILS

A pair of precision coils with 4 mm terminals and 400 turns of wire are wound on former of about 150 mm diameter. The coil is comprised of a support rod, which fits on the holders of the track system supplied.

PH0845HEL
\$120

A pair of precision coils and 400 turns of wire are wound on former of about 150 mm diameter. The coil is comprised of a support rod, which fits on the holders of the track system supplied, which enables them to be aligned on a common axis for measurements and study of the magnetic fields. Direction of current is marked on each coil.



MAGNETIC FIELD STUDIES

MAGNET THEORY BOARD

Simple and handy, 46 compasses fixed around the magnet to realize the magnetic lines of force. Complete with magnet.

Simple and handy, shows the magnetic lines of forces when a magnet is placed, 46 compasses fixed around the magnet to realize the magnetic lines of force. Complete with magnet.

PH0801MFD
\$55



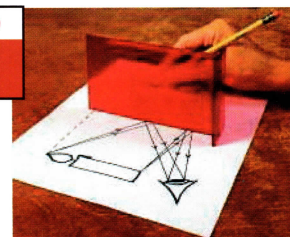
I may look simple but I can do lots of cool stuff!

REFLECT VIEW

Where is the image? Reflective symmetry, transformations, congruence optical isomers, light refraction. Draw concise images to correctly reflect positioning.

Try me for light ray diagrams and geometry! All makes sense when you see me work!

P29570
\$6



LEYDEN JAR

- Shock your students again and again with this Leyden Jar.
- It comes with a durable inner and outer plate, a plastic dielectric, and directions.
- The inner plate has a hook and ball attached which makes it easy to charge.
- Use this equipment to duplicate many classic static electricity experiments.
- PH0906 © Leyden Jar

PH0906

\$20



EDDY CURRENT UNIT

- Two masses drop down a 33cm copper tube. One is steel, one is a neodymium magnet. When students see the magnetic mass falls more slowly than the steel mass, you can introduce them to electrical eddy currents.
- These currents oppose downward motion through a moving magnetic field created by the falling neodymium magnet.

PH0845

\$29



DISSECTIBLE TRANSFORMER, SMALL, 12V.

AC,300+300+600T KIT

Dissectible Transformer - Small. It consists of a 'U' and 'I' core and a set of coils for study of induction and transformers and it is designed to operate at a safe 12V.AC.. Iron bars are included to study losses in iron, eddy currents, DC and AC magnets and more. A pair of strong Alnico bar magnets are included in the kit.

EM4089-00

\$69



BALLISTIC CAR

- The apparatus consists of a heavy metallic barrel mounted vertically on an aluminium car.
- The car has plastic wheels with ball bearings to minimise friction.
- Spring loaded piston arrangement
- Complete with steel balls and a lock-pin with cord
- With instructions

PH0355A

\$89



ELECTRONICS & PHOTONICS KIT

- This extensive kit covers all aspects of basic electronics, including transistor amplification & Photonics.
- Includes detailed experiments written especially for students.

CD OF EXPERIMENTS

Cutting Edge Technology

EM1765002

\$32



EM1765001

\$290

EM Best Seller

RADIOACTIVE SOURCE (MAGIC)

- Specially designed for use in schools.
- Safe and simple to operate, very reliable & microprocessor controlled.
- It simulates a 'True to Life' radioactive source behaviour.
- 'Magic' concept makes equipment exciting & fun to use.

AP 2668-001

\$198



EM Best Seller

α , β , γ

Ultimate Simulator

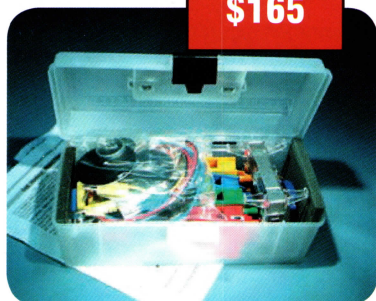
HODSON INDUCTION KIT

- Covers both DC and AC induction and allows students to wind their own transformer coils to study transformer theory.
- Whole system runs at 12V for safety.
- Plastic parts are strong & long lasting.
- Includes excellent teacher guide.

EM Best Seller

EM1973001

\$165



The complete self contained course in induction

PHOTO-ELECTRIC EFFECT - PLANCK'S CONSTANT

$$E = hf$$

- This apparatus is self contained and requires only 12V to run the light source.
- The inbuilt photo-tube is easily visible for inspection.
- Supplied with lamp, filters, digital recording and variable input.
- Electron-photon relationship elegantly demonstrated and explained

EM Best Seller

AP 2341001

\$460



RHUMKORFF COIL (SPARK COIL)

- INPUT : 6 to 9V DC at about 5 to 7 amps.
- OUTPUT : 25 to 30mm spark discharge between needle points.
- High quality disectible unit.
- Excellent magnetic field collapse leading to voltages of about 50,000V
- Brilliant electromagnetic demo!!
- Also use for Crooke's and Spectrum Tubes

EM Best Seller

EM3450001

\$310



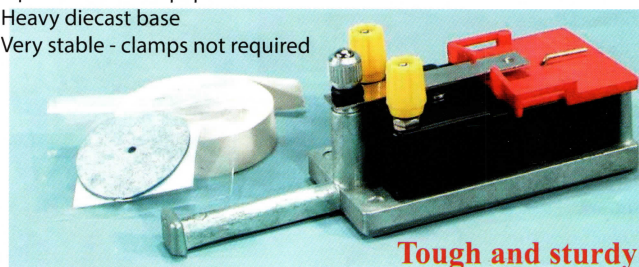
RECORDING TIMER - AC 50Hz

- Simple low velocity measuring device
- Includes 1 roll/30mm White paper tape 1 pack/25 carbon paper discs
- Heavy diecast base
- Very stable - clamps not required

EM Best Seller

LB2670-001

\$46



Tough and sturdy